UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,510	04/30/2001	James A. Bisher JR.	A-6684	2086

5642   7590   06/30/2006

SCIENTIFIC-ATLANTA, INC.
INTELLECTUAL PROPERTY DEPARTMENT
5030 SUGARLOAF PARKWAY
LAWRENCEVILLE, GA 30044

EXAMINER
SHANG, ANNAN Q

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/845,510	BISHER ET AL.
	Examiner	Art Unit	
	Annan Q. Shang	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-55* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Miscellaneous

1.   Please note the examiner of record for the prosecution of this application

has changed.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this Office

action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-2, 14-24 and 36-55 are rejected under 35 U.S.C. 102(e) as being

anticipated by **Limb et al (2001/0030975).**

As to claim 1, note the **Limb** reference figures 1-3, discloses method for opening

a proprietary MAC protocol in a non-DOCSIS modem compatibly with a DOCSIS

modem and further discloses a method for providing a multicast of a packet, which is

included in a transport stream, in a digital network, the method comprising:

receiving at an input port (Head End 'HE' 112 inputs Packet Based Network

Router 'PNWR' 144 and CMTS 142) the transport stream having a plurality of packets

included therein and a plurality of PID streams (fig.2, page 2, [0018], [0020-0024]);

determining (CMTS-142 protocol processor) whether a given packet of the plurality of packets is a multicast packet or a unicast packet, wherein a multicast packet is designated for transmission from a plurality of modulators and a unicast packet is designated for transmission from only one modulator of the plurality of modulators (page 2, [0022-0023], [0029-0032], [0036], [0043-0046] and [0048-0052]);

transmitting and modulating the given packet or a subset of the plurality of PID streams from more than one modulator of the plurality of modulators when the given packet is a multicast packet; and transmitting and modulating the given packet from only one modulator of the plurality of modulators when the given packet is a unicast packet (page 2, [0022-0023], [0029-0032], [0036], [0043-0046] and [0048-0052]).

As to claim 2, Limb further discloses identifying packets of the plurality of packets that are to be transmitted from at least one modulator; and associating a modulator identifier with each identified packet, wherein the modulator identifier identifies each modulator from which the packet is to be transmitted (page 4, [0043-0046] and [0048-0052]).

As to claim 14, Limb further discloses where at least one modulator of the plurality of modulators is a radio frequency modulator (page 3, [0030-0031])

As to claim 15, Limb further discloses where the radio frequency modulator is a QAM modulator (page 3, [0030-0031]).

As to claim 16, Limb further discloses wherein the packets of the transport stream include packets conforming to MPEG protocols, and the given packet has a first

PID when it is received and a second PID when it is transmitted, wherein the second

PID is different from the first PID (page 2, [0018], [0024-0026] and [0034]).

As to claim 17, Limb further discloses receiving a second transport stream at a

second input port, the second transport stream including a plurality of packets;

extracting from the first and second transport streams each packet that is to be

transmitted from at least one modulator of the plurality of modulators; and sorting

extracted packets into a plurality of groups, the plurality of groups including a

multicast group that includes multicast packets from the first and second transport

streams and at least one unicast group that includes unicast packets from the first and

second transport streams (page 4, [0042-0046] and [0048-0052]).

As to claim 18, Limb further discloses associating a modulator identifier with each

packet of the multicast coup, wherein the modulator identifier identifies each modulator

of the plurality of modulators from which the associated packet is transmitted (page 4,

[0042-0046] and [0048-0052]).

As to claim 19, Limb further discloses wherein the at least one unicast group is a

plurality of unicast groups, each unicast group is associated with a given modulator of

the plurality of modulators, and further including the step of: associating a modulator

identifier with each packet of each unicast group, wherein the modulator identifier

identifies the given modulator of the plurality of modulators from which the associated

packet is transmitted (page 4, [0042-0046] and [0048-0052]).

As to claim 20, Limb further discloses wherein the first and second transport streams include packets that conform to MPEG protocols (page 2, [0018], [0024-0026] and [0034]).

As to claim 21, Limb further discloses wherein at least one packet of the first transport stream has a first PID value associated therewith and at least one packet of the second transport stream has a second PID value associated therewith, and wherein the first Pm value and the second Pm value are the same value (page 2, [0018], [0024-0026] and [0034]).

As to claim 22, Limb further discloses wherein when a packet conforming to MPEG protocols is received the packet has a first PID value associated therewith, and the packet has a second PID value associated therewith when the packet is transmitted and when the packet is a multicast packet (page 2, [0018], [0024-0026] and [0034]).

As to claim 23, the claimed "An apparatus in a digital network that receives a transport stream and transmits a plurality of transport streams, the apparatus comprising..." is composed of the same structural elements that were discussed with respect to the rejection of claim 1.

Claim 24 is met as previously discussed with respect to claim 2.

Claim 36 is met as previously discussed with respect to claim 14.

Claim 37 is met as previously discussed with respect to claim 15.

Claim 38 is met as previously discussed with respect to claim 16.

Claim 39 is met as previously discussed with respect to claim 17.

Claim 40 is met as previously discussed with respect to claim 18.

Claim 41 is met as previously discussed with respect to claim 19.

Claim 42 is met as previously discussed with respect to claim 20.

Claim 43 is met as previously discussed with respect to claim 21.

Claim 44 is met as previously discussed with respect to claim 22.

As to claim 45, the claimed "An apparatus in a digital network that receives a transport stream and transmits a plurality of transport streams, the apparatus comprising..." is composed of the same structural elements that were discussed with respect to the rejection of claim 1.

As to claims 46-47, Limb further discloses where the plurality of modulators includes a first modulator and a second modulator, the first modulator transmitting a first plurality of the plurality of PID streams therefrom, the second modulator transmitting a second plurality of the plurality of PID streams therefrom, and the first plurality of PID streams is different than the second plurality of PID streams, wherein the first plurality of PID streams includes a given PID stream and the second plurality of Pm streams includes the given PID stream (page 2, [0020], [0024-0027], [0034-0036] and [0043-0050).

As to claims 48-49, Limb further discloses where the given PID stream of the first plurality of PID streams includes a first plurality of packets, the given Pm stream of the second plurality of PID streams includes a second plurality of packets, and the first and second plurality of PID streams are the same and where the plurality of packets of the given PID stream have a common PID value and the plurality of packets had a different

common PID value when received in the input port (page 2, [0020], [0024-0027], [0034-0036] and [0043-0050]).

As to claim 50, Limb further discloses where the received transport stream includes a given PID stream that consists of a plurality of packets having a first common PID value associated therewith, the plurality of packets have a second common PID value associated therewith when they are modulated and transmitted from at least one modulator of the plurality of the modulators (page 2, [0020], [0024-0027], [0034-0036] and [0043-0050])

As to claims 51-52, limb further discloses where the plurality of PID streams received in the input port includes a first given PID stream having a plurality of packets with a first common PID value associated and further includes a second input port adapted to receive a second transport stream having a second plurality of PID streams included therein, the second plurality of received PD streams includes a second given PID stream having a plurality of packets with a second common PID value associated therewith; and wherein at least one modulator of the plurality of modulators modulates and transmits there from the plurality of packets of the first given PID stream and the plurality of packets of the second given PID stream, where the plurality of packets of the second given PID stream have a third common PID values associated therewith when the plurality of packets are transmitted, and second and third common PID values are different (page 2, [0020], [0024-0027], [0034-0036] and [0043-0050]).

As to claim 53, Limb further discloses wherein the at least one modulator is a plurality of modulators (page 3, [0030-0034] and [0047-0052]).

Claim 54 is met as previously discussed with respect to claim 14.

Claim 55 is met as previously discussed with respect to claim 15.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 3-13 and 25-35 are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Limb et al (2001/0030975)** in view of **Du et al (6,088,346).**

As to claim 3, the Limb reference teaches all of that which is discussed above

with regards to claim 2, and further teaches the step of "processing the given packet for

transmission from at least one multimodulator, but fails to explicitly teach copying the

given packet when the given packet is a multicast packer".

However, **Du** reference, discloses that when a multicast connection is required of

a cell (packet), the packet is copied in accordance with the number of connections

defined by the multicast connection and written into a respective buffer memory (col. 11,

lines 19-22). Furthermore, the claimed step of "providing each modulator identified by

the modulator identifier with a copy of the given packet, wherein each copy has a

common output PID value associated therewith" is met inherently by the fact that the

packet is a copy, therefore indicating that it would have the same PID and the fact that

the Limb reference teaches providing the packets to the modulators based on the

routing table (page 3, [0030-0034] and [0046-0052], which determines the modulator

assigned to each individual modems. It would have been clearly obvious to one of

ordinary skill in the art at the time of the invention to copy the packets that are multicast

packets, in order to allow multicasting over multiple modulators. Claim 1 of the Limb

reference refers to multicasting the packets, but over only one modulator. Multiple

modulators (therefore requiring multiple copies of the packets) could be used to

multicast to a larger group of users or cable modems (CMs).

As to claim 4, the Limb and Du references teach all of that which discussed

above with regards to claim 3, but fails to explicitly teach encrypting the given packet.

However, Examiner takes OFFICIAL NOTICE that it is notoriously well known in

the art to encrypt content before transmission over and open network (such as those in

use in the two references).

Therefore it would have been clearly obvious to one of ordinary skill in the art at

the time of the invention to encrypt the packets before transmission, in order to provide

additional security to the content and transmit the content to subscribers more securely

through encryption.

As to claim 5, the Limb teaches all of that which is discussed above with regards

to claim 3, Limb further discusses servers for storing data and modulators as discussed

in claim 1, but fail to explicitly teach, "storing in a buffer of a plurality of buffers each

identified packet having a modulator identifier associated therewith".

However, Du discloses the use of a buffer for storing multicast packets before

transmission (col.11, lines 14-25).

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to use buffer memories for storing packets, in order to possibly modify

the packets or store the packets for multiple transmissions.

As to claim 6, the Limb teaches all of that which is discussed above with regards

to claim 5, but fail explicitly teach first buffer of the plurality of the buffers is a multicast

buffer for storing multicast packets, and wherein a second buffer of the plurality of the

buffers is a unicast buffer for storing unicast packets.

However, Du further discloses the use a buffer for storing unicast packets and a

buffer for storing multicast packets before transmission (col. 11, lines 14-25).

Therefore it would have been obvious to one of ordinary skill in the ad at the time

of the invention to use buffer memories for storing packets, in order to possibly modify

the packets or store the packets for multiple transmissions.

As to claim 7, Limb and Du teach all of that which is discussed above with

regards to claim 5, but fail to explicitly teach "receiving a message indicating that a

particular modulator of the plurality of modulators is ready to receive a packet for

transmission therefrom".

However, the Examiner takes OFFICIAL NOTICE that it is notoriously well-known

in the art to us "ready signals" or messages in computer architectures to notify

processors or other processing entities that a component is ready for data.

Therefore, the Examiner submits that it would have been clearly obvious to one

of ordinary skill in the art at the time of the invention to have the modulator release a

"ready message" in order to indicate to the processor that it is ready for data for

transmission. The claimed step of "sending the given packet from a given buffer of the plurality of buffers to the particular modulator, wherein the modulator identifier associated with the given packet identifies the particular modulator" is not explicitly met in Limb as discussed in claim 1. Du further discloses a buffer for storing multicast packets before transmission (col. 11, lines 14-25).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use buffer memories for storing packets, in order to possibly modify the packets or store the packets for multiple transmissions.

As to claim 8, Limb and Du references teach all of that which is discussed above with regards to claim 5, but fails to explicitly teach, "a plurality of buffers include a plurality of unicast buffers, each unicast buffer is associated with a given modulator of the plurality of modulators and is adapted to store unicast packets that are for transmission from the given modulator associated with the unicast buffer, and the plurality of buffers includes a multicast buffer for storing multicast packets therein".

However, Du further discloses a buffer for storing unicast packets and a buffer for storing multicast packets before transmission (col.11, lines 14-25).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use buffer memories for storing packets, in order to possibly modify the packets or store the packets for multiple transmissions.

As to claim 9, the Limb and Du references teach all of that which is discussed above with regards to claim 8, but fails to explicitly teach "determining whether to check the unicast buffer associated with the particular modulator for a unicast packet for

transmission from the particular modulator or to check the multicast buffer for a

multicast packet, responsive to determining to check the associated unicast buffer,

retrieving from the associated unicast buffer the given packet when there is a unicast

packet stored therein, and responsive to determining to check the multicast buffer,

determining whether a packet stored in the multicast buffer is for transmission from the

particular modulator and retrieving the given packet from the multicast buffer when the

given packet is determined to be for transmission from the particular port.

However, Du further discloses a buffer for storing unicast packets and a buffer for

storing multicast packets before transmission (col.11, lines 14-25).

Therefore it would have been obvious to one of ordinary skill in the ad at the time

of the invention to use buffer memories for storing packets, in order to possibly modify

the packets or store the packets for multiple transmissions.

As to claim 10, the Limb and Du, fial to explicitly teach, "associating a count

register of a plurality of count registers with each modulator of the plurality of

modulators, incrementing the count register associated with the particular

modulator indicated by the message, and when a packet is retrieved, decrementing

each count register associated with a modulator identified by the modulator identifier

associated with the retrieved given packet".

However, Examiner takes OFFICIAL NOTICE that it is notoriously well known in

the art to provide computers with general purpose count registers for accumulating

arithmetic results, such as a register for accumulating the number of data packets

transmitted via a certain modulator.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use count registers, in order to keep track of the amount of data being processed by the modulator, and to keep track of when the modulator is available and ready for transmitting a packet.

As to claim 11, the Limb and Du references teach all of that which is discussed above with regards to claim 10, but fails to explicitly teach unicast buffer is a first-in-first-out buffer, and when the given packet is retrieved from the given unicast buffer the given packet is the current first-in packet, and wherein when the given packet is retrieved from the multicast buffer the given packet is determined at least in part by the current status of the plurality of count registers and at least in part by the modulator identifier associated with the given packet.

However, Du further discloses buffers for unicast and multicast transmission and also proposes that newly entered packets overwrite any available packets (col.11, lines 50-51), indicating that the buffer functions as a first-in-first-out (FIFO) buffer, as is common in buffer technology.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use FIFO buffers, in order to sequentially process data for the unicast and multicast buffers.

As to claims 12-13, the Limb fails to explicitly teach "the determination for checking the multicast buffer or the associated unicast buffer is based at least in part on the current status of the multicast buffer and the associated unicast buffer" or "the

determination for checking the multicast buffer or the associated unicast buffer is based

at least in pad on prior determinations".

However, Du further discloses a buffer for storing unicast packets and a buffer for

storing multicast packets before transmission (col.11, lines 14-25).

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to use buffer memories for storing packets, in order to possibly modify

the packets or store the packets for multiple transmissions.

Claims 25-35 are met as previously discussed with respect to claims 3-13.

Response to Arguments

6.   Applicant's arguments with respect to claims 1-55 have been considered

but are moot in view of the new ground(s) of rejection discussed above. This office

action is non-final.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Laubach et al (6,917,614) disclose multi-channel support for virtual private

networks in a packet to ATM cell cable system.

Denney et al (6,909,715) disclose method and apparatus for the reduction of

upstream request processing latency in a cable modem termination system.

Seaver et al (6,771,642) disclose method and apparatus for scheduling packets
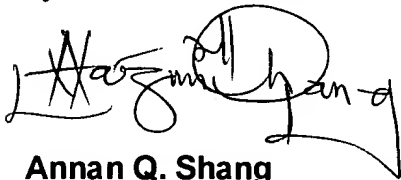
in a packet switch.

McKeown (6,515,991) discloses combined unicast and multicast scheduling.

Harriman et al (5,898,687) disclose arbitration mechanism for multicast logic engine of a switching fabric circuit.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Annan Q. Shang** whose telephone number is **571-272-7355**. The examiner can normally be reached on **700am-400pm**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Christopher S. Kelley** can be reached on **571-272-7331**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the **Electronic Business Center (EBC) at 866-217-9197 (toll-free)**. If you would like assistance from a **USPTO Customer Service Representative** or access to the automated information system, **call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.**

Annan Q. Shang